

CLAIMS

1. A plasma generating electrode comprising at least a pair of electrodes disposed opposite to each other and capable of generating plasma upon application of
5 voltage between the electrodes,

at least one of the pair of electrodes including a plate-like ceramic body as a dielectric and a plurality of conductive films disposed inside the ceramic body without overlapping with one another and each having a plurality of through-holes formed through the conductive film in its thickness direction in a predetermined arrangement
10 pattern, the through-holes having a cross-sectional shape including an arc shape along a plane perpendicular to the thickness direction, an arrangement pattern of the through-holes formed in at least one of the conductive films being different from the arrangement pattern of the through-holes formed in the other conductive film, the plasma generating electrode being capable of simultaneously generating different states
15 of plasma upon application of voltage between the pair of electrodes due to the different arrangement patterns of the through-holes in the conductive films.

2. A plasma generating electrode comprising at least a pair of electrodes disposed opposite to each other and generating plasma upon application of voltage
20 between the electrodes,

at least one of the pair of electrodes including a plate-like ceramic body as a dielectric and at least one conductive film disposed inside the ceramic body and having a plurality of through-holes formed through the conductive film in its thickness direction in two or more different arrangement patterns, the through-holes having a
25 cross-sectional shape including an arc shape along a plane perpendicular to the thickness direction, the plasma generating electrode being capable of simultaneously generating different states of plasma upon application of voltage between the pair of

electrodes due to the different arrangement patterns of the through-holes in the conductive film.

3. The plasma generating electrode according to claim 1 or 2, wherein the
5 through-holes have a circular cross-sectional shape along a plane perpendicular to the thickness direction.

4. The plasma generating electrode according to any of claims 1 to 3, wherein at least one of the conductive films includes a metal differing from that of the other
10 conductive film as a major component.

5. The plasma generating electrode according to any of claims 1 to 4, wherein the conductive film includes at least one metal selected from the group consisting of tungsten, molybdenum, manganese, chromium, titanium, zirconium, nickel, iron, silver,
15 copper, platinum, and palladium as a major component.

6. The plasma generating electrode according to any of claims 1 to 5, wherein the conductive film is disposed inside the ceramic body by screen printing, calender rolling, spraying, chemical vapor deposition, or physical vapor deposition.
20

7. A plasma generation device comprising the plasma generating electrode according to any of claims 1 to 6.

8. An exhaust gas purifying device comprising the plasma generation device
25 according to claim 7 and a catalyst, the plasma generation device and the catalyst being disposed in an exhaust system of an internal combustion engine.